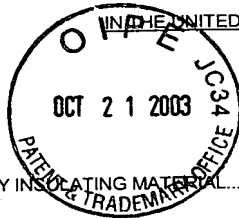


36  
In Re Application of: F. JOHANSEN

Appln. No. 09/746,560

Date Filed: December 26, 2000

For: ENVIRONMENTALLY FRIENDLY INSULATING MATERIAL...



UNITED STATES PATENT AND TRADEMARK OFFICE

Art Unit: 1771

Examiner: J. R. Pierce

Washington, D.C.

Atty.'s Docket: JOHANSEN=3

Date: October 21, 2003

**Confirmation No. 1686**

Honorable Commissioner for Patents  
U.S. Patent and Trademark Office  
2011 South Clark Place  
Customer Window, Mail Stop APPEAL BRIEF PATENTS  
Crystal Plaza Two, Lobby, Room 1B03  
Arlington, Virginia 22202

Sir:

Transmitted herewith is a ☒ Brief On Behalf of Appellants the above-identified application.

☐ Small entity status of this application under 37 CFR 1.9 and 1.27 has been established by a verified statement previously submitted

☐ Applicant claims small entity status. See 37 C.F.R. §1.27.

☒ Appeal Brief Fee - \$330.00.

The fee has been calculated as shown below:

	(Col. 1)		(Col. 2)	(Col. 3)
	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NO. PREVIOUSLY PAID FOR	PRESENT EXTRA EQUALS
TOTAL	*	MINUS	** 20	
INDEP.	*	MINUS	*** 3	
FIRST PRESENTATION OF MULTIPLE DEP. CLAIM				

SMALL ENTITY	
RATE	ADDITIONAL FEE
x 9	\$
x 43	\$
+ 145	\$
ADDITIONAL FEE TOTAL	
	\$

OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE
x 18	\$
x 86	\$
+ 290	\$
TOTAL	
	\$

\* If the entry in Col. 1 is less than the entry in Col. 2, write "0" in Col. 3.

\*\* If the "Highest Number Previously Paid for" IN THIS SPACE is less than 20, write "20" in this space.

\*\*\* If the "Highest Number Previously Paid for" IN THIS SPACE is less than 3, write "3" in this space.

The "Highest Number Previously Paid For" (total or independent) is the highest number found from the equivalent box in Col. 1 of a prior amendment of the number of claims originally filed.

☒ Conditional Petition for Extension of Time

If any extension of time for a response is required, applicant requests that this be considered a petition therefor.

☐ It is hereby petitioned for an extension of time in accordance with 37 CFR 1.136(a). The appropriate fee required by 37 CFR 1.17 is calculated as shown below:

Small Entity

Response Filed Within

☐ First - \$ 55.00  
☐ Second - \$ 210.00  
☐ Third - \$ 475.00  
☐ Fourth - \$ 740.00

Month After Time Period Set

Other Than Small Entity

Response Filed Within

☐ First - \$ 110.00  
☐ Second - \$ 420.00  
☐ Third - \$ 950.00  
☐ Fourth - \$ 1480.00

Month After Time Period Set

☐ Less fees (\$ ) already paid for month(s) extension of time on .

☒ Credit Card Payment Form, PTO-2038, is attached, authorizing payment in the amount of \$330.00.

☒ The Commissioner is hereby authorized and requested to charge any additional fees which may be required in connection with this application or credit any overpayment to Deposit Account No. 02-4035. This authorization and request is not limited to payment of all fees associated with this communication, including any Extension of Time fee, not covered by check or specific authorization, but is also intended to include all fees for the presentation of extra claims under 37 CFR §1.16 and all patent processing fees under 37 CFR §1.17 throughout the prosecution of the case. This blanket authorization does not include patent issue fees under 37 CFR §1.18.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES



ATTY.'S DOCKET: JOHANSEN=3

In Re Application of:

Fridtjov JOHANSEN

Appln. No.: 09/746,560

Date Filed: December 26, 2000

For: ENVIRONMENTALLY FRIENDLY  
COMPATIBLE INSULATING...

) Art Unit: 1771  
)  
) Examiner: J. R. Pierce  
)  
) Washington, D.C.  
)  
) Confirmation No. 1686  
)  
) October 21, 2003  
)

**BRIEF ON BEHALF OF APPELLANT**

Customer Window, Mail Stop Appeal Brief-Patents  
Honorable Commissioner for Patents  
U.S. Patent and Trademark Office  
2011 South Clark Place  
Crystal Plaza Two, Lobby, Room 1B03  
Arlington, Virginia 22202

Sir:

The present Appeal is taken from the Action of the  
examiner in finally rejecting claims 25-32. A clean copy of  
these claims, double-spaced, appears in the Appendix to this  
Brief.

**REAL PARTY IN INTEREST**

The real party in interest is Ultimat AS of Oslo,  
Norway.

10/22/2003 HDENESS1 00000050 09746560

01 FC:1402

330.00 OP

**RELATED APPEALS AND INTERFERENCES**

Undersigned is aware of no related appeals or interferences.

**STATUS OF THE CLAIMS**

Claims 1-15 are cancelled. Claims 16-24 are withdrawn from consideration. Claims 25-32 are rejected.

**STATUS OF AMENDMENTS**

All amendments have been entered except for the amendment after final action filed July 18, 2003, which has been refused entry on the basis that it raises new issues and is "not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal." As a consequence of the amendment after final action being refused entry, the non-elected claims 16-24 are still pending, although appellant attempted to delete such claims in the amendment after final action.

**SUMMARY OF INVENTION**

The present invention relates to a method for producing an environmentally friendly insulating material, especially useful as an insulating panel for insulating buildings, houses, etc., which is non-allergenic and almost

100% recyclable (page 1, first paragraph<sup>1</sup>; page 2, lines 23-30), which is aerated (page 6, line 27) and thus is lightweight, having a very low heat conductivity (e.g. page 7, line 3), and which critically contains flax fibers (page 3, lines 10-11). More particularly, the mat or panel of the present invention incorporates a mixture of different fibers comprising 5-50% by weight flax fibers, 5-50% by weight polyester fibers, preferably 15-40% by weight flax fibers and 10-30% by weight polyester, most preferably 20-30% by weight flax fibers and 15-20% by weight polyester, with the rest composed of shoddy (page 3, lines 9-14). Of that percentage which constitutes shoddy, 30-40% thereof may be replaced with shredded waste paper and/or cardboard (page 3, lines 15-18).

The method by which the claimed product is made comprises providing the material from which to make shoddy, and shredding such material into a homogeneous fibrous shoddy (page 6, lines 16-20). The shoddy is then blended with the flax fibers and the polyester fibers (page 6, lines 20-24). The resultant mixture is then aerated, e.g. air is blasted through the mass of mixed fibers (page 6, lines 24-27). The aerated mass is then formed to a mat shape and finally heated causing the polyester fibers to at least partially melt and

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<sup>1</sup> Unless otherwise indicated, references herein are to appellant's specification.

provide bonding for the other fibers (page 6, lines 28-33).

The inventive idea of the present invention is not simply to make a mat by mixing different fibers and molding them into a wanted shape and heat treating until the plastic fibers melt and bond the other fibers together to form the mat. Instead, the inventive idea is to make an aerated insulation product for buildings from recycled scrap material such as used clothes, fabric leftovers, etc. In other words, the inventive idea is the conversion of a waste material into a useful product. In addition to solving a waste problem, the claimed product obtains the same quality and performance, but is cheaper to manufacture and significantly more healthy for the personnel handling it and the habitants living in the buildings that are isolated by the product than the present corresponding type of products which at least in Europe are of glass wool or rock wool.

By proceeding according to what is disclosed in the present application, one obtains an insulation mat which is mostly air and thus has a very low density. This inherently occurs by aerating the homogenous fiber mixture.

Attention is particularly invited to page 5 of appellant's specification which points out certain advantages to the present invention as follows:

"The use of used fabrics/fabric waste and possibly wastepaper/cardboard which are shredded into shoddy means that this insulating material is particularly environmentally friendly. In the first place, the raw material is recycled materials which at present are usually either incinerated in rubbish plants or deposited in rubbish dumps. The invention thereby helps to reduce the amount of waste and the emission of climate gases. In Norway 3500-4000 tons of fabric waste is discarded every year. It is a known fact that fabric waste will emit methane gas during decomposition. Methane gas is a potent greenhouse gas if it is released into the atmosphere. Incineration of fabric waste also emits climate gases, in this case CO<sub>2</sub>. For this reason, e.g., a law has been introduced in Germany ordering recycling of textiles, and work is underway to introduce a similar law for the entire EU area.

"The material is also advantageous in that it requires a relatively small amount of energy during production. For example, the energy requirement for a 1m<sup>2</sup>, 15 cm thick insulating mat according to the invention is approximately 4 kWh, while for a corresponding Glava mat the energy consumption is approximately 14 kWh or 3.5 times as much. This is clearly a significant saving. In addition, the present invention will save energy since insulating mats made of this material will keep their shape for the foreseeable

future, thus keeping the insulating power intact over a very long period. This is not the case with many of today's insulating materials. Thus the requirement for energy for heating of the buildings/objects employing the insulating material will be reduced compared to that required for present day insulating materials.

"In addition, the insulating material according to the invention is user-friendly, i.e. not hazardous to the building workers and the subsequent occupant(s) since the material does not cause allergy or asthma, it emits almost no noxious gases and produces little dust. The insulating material is therefore particularly suitable for sufferers from asthma and allergy and will help to improve the indoor climate for these people."

### ISSUES

A first main issue is whether or not the invention as called for in claims 25-28 and 30-32 would have been obvious to the person of ordinary skill in the art at the time the present invention was made as per the provisions of 35 U.S.C. 103, upon consideration of Doerer et al USP 4,418,031 (hereinafter "Doerer") in view of Barrable USP 4,101,335 (hereinafter "Barrable").

A second main issue is whether or not the invention as called for in claim 29 would have been obvious to the person of ordinary skill in the art at the time the present invention was made under the provisions of 35 USC 103 upon consideration of Doerer in view of Barrable, and further in view of Vöst et al USP 5,047,453 (hereinafter simply "Vöst").

There are of course a number of sub-issues involved in each of the main issues, one such sub-issue being whether or not the person of ordinary skill in the art would have attempted to combine the references as proposed in the rejections.

Another sub-issue is whether or not the references, even if obviously combinable, would have led to the claimed subject matter or resulted in the claimed subject matter.

Other sub-issues will become apparent from appellant's argument section appearing below.

#### GROUPING OF CLAIMS

As regards the separate rejection of claim 29, of course this claim must be considered separately from the other claims.

As regards the rejection of claims 25-28 and 30-32, claim 27 can be considered along with claim 25, but each of claims 26, 28, 30, 31 and 32 should be considered separately.



Appellant makes no admission that any of the claims are or are not patentably distinct from one another.

#### **ARGUMENT**

Claims 25-28 and 30-32 have been rejected as obvious under Section 103 from Doerer in view of Barrable. Claim 29 has been similarly rejected as obvious under Section 103 from Doerer in view of Barrable, further in view of Vöst.

To the contrary, appellant respectfully maintains and submits that the subject matter of the invention as called in appellant's claims would not have been obvious to the person of ordinary skill in the art at the time the present invention was made from a consideration of the prior art, and in this regard the examiner has not met his burden.

#### **I - The Errors in the Rejection**

The rejections are erroneous because the prior art provides no motive or incentive for the proposed combinations.

The rejections are erroneous because the objectives of the various references are substantially different.

The rejections are erroneous because no reasonable combination of the references, even if obvious, would provide everything claimed, and particularly no possible combination

would provide a lightweight product by virtue of its aerated structure.

Other errors in the rejections will be apparent from the arguments appearing below.

## II - What the Prior Art Documents Disclose

The applied references in general disclose the manufacture of panels or mats from mixtures of fibers, although in each case the panel or mat produced is of a high density as pointed out below. Doerer's panel may include shoddy, but flax is not mentioned. Barrable lists flax as part of a basket or shotgun disclosure of various fibrous materials. Vöst mentions the use of shredded waste paper.

Insofar as the objectives of the references are concerned, and therefore the resultant structures, the mats or panels according to Doerer, Barrable and Vöst are all of substantial density, i.e. compressed, and not aerated. Such resultant structures of the applied patents are highly compressed, preferably bonded with resin in addition to the thermosetting fibers, in order to obtain self-sustainable mats with densities from several hundred to a few thousands kg/m<sup>3</sup>, see i.e. tables in Examples 4 to 24 in Barrable, and line 62-65, column 2 in Vöst. The pressures employed forming these products are in the order of tens to hundreds of atmospheric

pressures, see line 7, column 3 in Vöst and line 44 of column 5 in Doerer.

Doerer, the main reference relied upon, discloses a fibrous mat formed by what is said to be "a unique dry process", of a mixture of base fibers and carrier fibers (e.g. column 1, lines 17-20). The base fibers are preferably cellulosic, and may come from reclaimable sources (e.g. column 2, lines 10-14). As recognized in the rejection, and even though there is a relatively comprehensive basket or shotgun disclosure of base fibers (column 2, lines 50-53; column 3, lines 67 through column 4, line 3), flax is not mentioned.

The carrier fibers, intended to soften during the process and thus provide a binding effect for the base fibers, may also be selected from a basket or shotgun disclosure of possibilities, including a "material selected from the vinyl family, the polyester family, the polyolefin family, the polyamide family, and any physical or chemical combination of those families" (column 4, lines 6-9). However, polyethylene and polypropylene are preferred. Polyesters are mentioned as a possible supplementary carrier fiber to provide hydrophobic properties, noting column 6, lines 48 et seq, particularly line 62.

In one example, the mixture consists of 85% by weight wood fibers, 10% by weight polypropylene carrier fibers and 5% by weight of phenolic resin (column 7, lines 5-8).

In another example, the mix consists of 85-87% wood fibers, 5% polyethylene resin, 5% phenolic resin, and 3-5% shoddy, the latter consisting of about 35% cotton and about 65% polyester (column 7, lines 23-29).

The fibrous mat of Doerer is made by a dry process which is distinguished from a wet process. From column 2, commencing at line 43:

It is a primary object of this invention to provide a unique dry process of forming a flexible mat consisting essentially of base and carrier fibers, the base fiber being a natural or synthetic fiber, and the carrier fiber being a linking fiber adapted to intertwine or interlock with the base fibers.

Also see column 2, lines 3-5.

The importance of proceeding according to the dry process is emphasized at column 2, lines 32-38 as follows:

While satisfactory products can be made by the wet slurry process, it is a relatively expensive process not only in terms of the amount of energy required but also because of its long manufacturing cycle time and the cost of cleaning the effluent resulting from the process prior to dumping. This invention, however, relates to a dry process and product made therefrom.

Doerer is silent on the formation of an aerated homogeneous mass.

The Doerer process inherently produces a compressed mat or panel, it being again noted that the Doerer products are produced under a mold pressure of 200-1,000 psi (column 5, line 44). Such pressures will inevitably squeeze out any air which might have been left in the mixture of cellulose and polyester fibers.

Barrable discloses shaped articles, made by a wet method, which are "fire-resistant" and are composed primarily of inorganic materials, namely (a) a water-settable inorganic binder which is one or more of a calcium silicate binder, Portland cement, aluminous cement and blast furnace slag cement, (b) fibrous reinforcing material including organic fibers which do not melt below 140°C, and (c) mica and/or vermiculite, inorganic materials.

### **III - Features Recited in Appellant's Claims Which Are Not Made Obvious**

As regards main claim 25, the prior art does not show the formation of an insulating material of "an aerated homogenous mass".

The prior art also does not make obvious the selection of a mixture consisting essentially of "flax fibers" together with a fibrous polyester.

As regards claim 26, the prior art also does not make obvious the use of a polyester having a dtex value in the range of 2-10, in addition to the features of claim 25 present in claim 26 by virtue of its dependence on claim 25.

As regards claim 28, in addition to the features of claim 25, the prior art does not make obvious the use of 5-50% by weight of flax fibers.

As regards claim 29, in addition to the features of claim 25, the prior art does not make obvious the replacement of 40% by weight of the shoddy with shredded recycled cardboard and/or waste paper.

With respect to claim 30, in addition to the features noted above with respect to claim 25, the prior art does not make obvious a mat shaped with a length of 120 m, a width of 0.58-1.00 m and a thickness of 5-15 cm.

With respect to claim 31, again in addition to the features of claim 25, the prior art does not make obvious the use of fibrous polyester having a dtex value of 2.5-6 and the presence of flax fibers in an amount of 15-40% by weight.

With respect to claim 32, in addition to the features of claims 25 and 30, the prior art does not make obvious the use of polyester fibers having a dtex value of 3-5, the presence of 20-30% by weight of flax fibers, and the provision of a heat conductivity of about 0.036-0.037 W/mk.

**IV - The Examiner Has Not Met His Burden: No Prima Facie Case of Obviousness Has Been Established**

The main claim 25 calls for a building insulating material consisting essentially of an aerated mixture of (1) shredded fabric remnants, (2) flax fibers, and (3) fibrous polyester which acts as a bonding agent. (According to claim 29, the shredded fabric remnants part of the material may comprise up to 40% by weight of fibers obtained from shredded cardboard and/or waste paper.)

The examiner agrees that Doerer does not disclose the use of flax, a critical component of appellant's mat. Doerer teaches the use of the cheapest fibers possible, e.g. wood fibers, shoddy, noting the examples. This is only logical.

As noted above, claim 25 also calls for the mixed fibers "to form an **aerated** homogeneous mass." Doerer is silent on this point. No applied reference teaches an aerated mass. A rejection usually cannot be based upon silence in a reference.

The examiner recognizes at least some of the deficiencies of Doerer, and therefore relies on Barrable as a secondary reference to try to make up for one of these deficiencies. Appellant understands that Barrable is only relied upon as a secondary reference, primarily to allegedly show the equivalency between flax and other cellulosic fibers.

Nevertheless, a full description is necessary to show not only its lack of relationship to the present invention, but also its lack of relationship to Doerer, and consequently that the person of ordinary skill in the art, wishing to modify any of the teachings of Doerer, would never be influenced by anything disclosed in Barrable.

As noted above, Barrable relates to a highly dense mat or panel formed largely of inorganic materials (cement and mica and/or vermiculite) in a wet process. How it can be validly said that a reading of Barrable would lead one toward the present invention is entirely unclear to appellant.

The only similarity appellant sees between the present invention and Barrable is that Barrable includes organic fibers which are "preferably cellulosic fibres" (column 2, lines 21 and 22), which can include waste wood pulps of all types, newsprint, as well as synthetic fibres (column 2, lines 27-31), including specifically "polyester fibres". Appellant sees no disclosure of presence of both polyester fibers **and** fibers obtained from fabric remnants and optionally recycled cardboard and/or wastepaper.

Appellant does not see that Barrable discloses the use of polyester fibers as a binding agent. Indeed, Barrable expressly teaches the use of an inorganic binder. To use polyester fibers as a binder in Barrable would be to fly in



the face of Barrable and destroy Barrable for its intended function<sup>2</sup>.

Next, claim 25 requires that the mixture form an **aerated** homogenous mass. Appellant does not see formation of any aerated mass in Barrable. Indeed, the methods of making board as disclosed in Barrable will inevitably lead to dense board. No aeration is disclosed whatsoever.

As pointed out above, Doerer discloses a product which has been necessarily formed by a dry process, whereas Barrable discloses a product which has necessarily been formed by a wet process. When taken with Doerer's criticism of the wet process (column 2, lines 32-38), this distinction alone would cause the person of only ordinary skill in the art to not even consider Barrable in conjunction with Doerer. Such a person of ordinary skill in the art, if he were to look at these two patents together, would consider them utterly incompatible.

As regards the use of flax specifically, what possible reason could the person of ordinary skill in the art have for using flax in the Doerer product, even though it is mentioned as a possibility in Barrable? There is no reason or purpose which is disclosed in the prior art for such a use.

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<sup>2</sup> It is also noted that polyester is only mentioned as part of a large basket or shotgun disclosure with no example being provided of the use of polyester for any purpose whatsoever.

Indeed, flax is a relatively expensive fiber, particularly compared to the inexpensive fibers preferred by Doerer. As there is no advantage disclosed in the prior art for the use of flax in place of less expensive fibers, no reason exists for its use and consequently there is no motive or incentive provided in the prior art to substitute the more expensive fiber for the less expensive fiber.

Respectfully, the combination is only suggested in appellant's own specification, and would not have been obvious to the person of ordinary skill in the art at the time the present invention was made.

Additionally, and even assuming *ad arguendo* that the combination were obvious, it still would not reach the present invention as called for in claim 25, because the resultant mixture of three different types of fibers in any modified Doerer would not "form an aerated homogenous mass" as claimed.

Appellant again respectfully emphasizes that the objectives of the references are largely and significantly different than the objectives of the present invention, and bearing in mind such difference in objectives, it would not have been obvious to the person of ordinary skill in the art to even attempt to manipulate the disclosures of the references so as to abstract portions of one for inclusion into another so as to obtain something which is different from

both Doerer and Barrable. Indeed, Doerer, Barrable and Vöst are all concerned with making pressed and therefore relatively dense shapes, not insulation for buildings.

As noted above, a key inventive idea of the present invention is not simply to make a mat by mixing different and molding them into a wanted shape by heat treatment. Instead, appellant's idea was to make an insulation product for buildings from recycled scrap material such as used clothes, fabric leftovers, etc., i.e. to convert waste material into a useful product. In addition to solving a waste problem, the claimed product has the same quality and performance as prior mats, but is cheaper to manufacture and significantly more than the corresponding type of products which at least in Europe are presently formed using glass wool or rock wool.

By proceeding according to the present application, one inherently obtains by aerating the homogenous fiber mixture an insulation mat which is mostly air and thus has a very low density. This is distinctly contrary to the panels according to Doerer, Barrable, and Vöst, all of which have importantly different densities, i.e. highly compressed structures.

In the mat according to the present invention there is employed hardly any pressure at all, i.e. only enough to shape and maintain the rather extreme aerated structure. It

should therefore be clearly understood that Doerer, Barrable and Vöst refer to a different type of product and are therefore only of little relevance.

The rejection states that Barrable teaches that flax is equivalent to the fibers disclosed by Doerer. However, this is a teaching contrary to the present invention, because flax is not equivalent. In the present invention, three different types of fibers must be present, namely (1) the recycled shoddy, (2) the polyester and (3) the flax. The latter is not equivalent to other fibers.

The present invention requires certain proportions, and this also is not made obvious by the prior art. It is not a matter of routine experimentation, because Doerer and Barrable desire to make denser products, and therefore routine experimentation would not teach how to obtain a product which is different from what is disclosed, taught and desired in both of those prior art patents.

As noted above, both Barrable and Doerer teach the manufacture of relatively dense products, and Barrable and Vöst include binders. In Barrable, a water-settable inorganic binder such as Portland cement is used. In Vöst, a hot melt adhesive and a solid epoxy resin/curing agent system are used. A consideration of these documents together does not lead one

having one ordinary skill in the art to or even anywhere near the present invention.

Moreover, appellant again does not see that the prior art teaches one of the main features of the present invention, namely the aerated nature of the admixture of fibrous materials. As noted above, it is the aeration which results in the aerated product which achieves a product which is largely air and thus provides excellent insulating properties.

To briefly summarize, the prior art teaches away from the present invention, directing the person of ordinary skill in the art to make a dense and highly compressed panel or mat. On this point, the panels or mats of Barrable and Doerer are made by thermosetting under really heavy pressures, such that they will obtain a considerable density (in the order of several hundred kg/m<sup>3</sup>). This density is far too heavy, and the structure of such panels is simply far too packed to be suited as insulation mattresses for buildings. The total weight of the panels according to Doerer and Barrable would with a 10-15 cm thick insulation (that is standard in Norway) weigh many tons above the carry-ability of wooden houses.

As regards the use of flax which is critical to the present invention, the prior art incorrectly teaches the

person of ordinary skill in the art that flax is no different than any other cellulosic fiber. The prior art thus provides no motive or incentive for selecting this more expensive fiber. Indeed, as suggested by Doerer and Vöst, only the cheapest fiber, i.e. the shredded waste paper, should be used in conjunction with the binder material, and this is only logical (although contrary to appellant's use of flax).

The insulating material of claim 25 would not have been *prima facie* obvious from a consideration of the prior art. The examiner has not met his burden.

With respect to claim 26, the prior art does not show the use of polyester having a dtex value in the range of 2-10, and this provides another reason why claim 26 is *prima facie* non-obvious from the prior art.

With regard to claim 28, the prior art does not teach the use of 5-50% by weight of flax fibers, and therefore this is another reason why claim 28 is *prima facie* non-obvious from the prior art.

With respect to claim 29, an even taking Vöst into account, the prior art does not make obvious to use together both shredded recycled cardboard and/or wastepaper in an amount up to 40% by weight together with 60% by weight or less of shoddy, based on the total amount of both shoddy and shredded paper/cardboard.

With respect to claim 30, the prior art further does not make obvious a mat having the dimensions recited.

As regards claim 31, the prior art further does not make obvious the use of a fibrous polyester having a dtex value of 2.5-6 which is present in an amount of 10-30% by weight, together with flax fibers present in an amount of 15-40% by weight.

Lastly, as regards claim 32, the prior art does not make obvious the use of a fibrous polyester having a melting point of 120-170°C and a dtex value of 3-5 present in an amount of 15-20% by weight, wherein the flax fibers are present in an amount of 20-30% by weight, and wherein the mat has a heat conductivity of about 0.036-0.037 W/mK. There is no way that the dense products of the prior art could possibly have such a heat conductivity.

Appellant now wishes to address various points raised in the final Office Action:

On page 4 of the Final Action, the examiner states as follows:

It would have been obvious to one having ordinary skill in the art to use flax fibers as the base fibers in Doerer et al., since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

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dated October 21, 2003

Appellant respectfully traverses and strenuously objects to such a conclusion. The prior art provides no knowledge of the need for flax in the present invention. Appellant respectfully relies on *Ex parte Levengood*, 28 USPQ 2d 1300, 1301-1302 (BPAI 1993):

The examiner notes that each reference discloses a different aspect of the claimed process. The examiner also notes that all aspects were "well known in the art". The examiner then indicates that because the various aspects of the claimed process were individually known in the art, the modifications of the electrophoretic process of Levengood by exposing Levengood's plant materials to cell-associated materials in order to "graft" or otherwise incorporate the cell associated material into the plants was **"well within the ordinary skill of the art"** at the time the claimed invention was made.

We reverse the rejection because the examiner has used the wrong standard of obviousness. (*Italics in original*)

Similar to *Levengood*, the rejection in the present case seems to be largely based on the assumption that it is proper to combine diverse elements from different references merely because these elements were known, and that it is possible in retrospect to combine them, but that is not the correct standard.

In order to establish a *prima facie* case of obviousness, it is necessary for the examiner to present **evidence** [footnote



including cited cases, omitted], preferably in the form of some teaching, suggestion, incentive or inference in the applied prior art, or in the form of generally available knowledge, that one having ordinary skill in the art **would have been led** to combine the relevant teachings of the applied references in the proposed manner to arrive at the claimed invention. See, for example, *Carella v. Starlight Archery*, 804 F.2d 135, 231 USPQ 644 (Fed. Cir. 1986); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 227 USPQ 657 (Fed. Cir. 1985). (Italics in original)

In the present case, as in *Levengood*, the prior art would not have led the person of ordinary skill in the art to appellant's invention because only a disadvantage, greater cost, would be expected to result from substituting flax for cheaper fibers.

In this case, ..., the only suggestion for the examiner's combination of the isolated teachings of the applied references improperly stems from appellant's disclosure and not from the applied prior art. In *re Ehrreich*, 590 F.2d 902, 200 USPQ 504 (CCPA 1979). **At best the examiner's comments regarding obviousness amount to an assertion that one of the ordinary skill in the relevant art would have been able to arrive at appellant's invention because he had the necessary skills to carry out the requisite process steps. This is an inappropriate standard for obviousness.** See *Orthokinetics Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1 USPQ 2d 1081 (Fed. Cir. 1986). **That which is within the capabilities of one skilled in the art is not synonymous with obviousness.** *Ex parte Gerlach*, 212 USPQ 471 (Bd. App. 1980). See also footnote 16 of *Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d

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1082, 1092, 227 USPQ 337, 343 (Fed. Cir.  
1985). (Emphasis added)

Simply because using flax is within the capability of "the general skill of a worker in the art" does not make it obvious to do so, particularly when there is no apparent advantage to do so provided in the prior art.

Our reviewing courts have often advised the Patent and Trademark Office that it can satisfy the burden of establishing a *prima facie* case of obviousness only by showing some objective teaching in either the prior art, or knowledge generally available to one of the ordinary skill in the art, that "would lead" that individual "to combine the relevant teachings of the references." *In re Fine*, 837 F.2d 1071, 5 USPQ 2d 1596 (Fed. Cir. 1988). *In re Newell*, 891 F.2d 899, 13 USPQ 2d 1248 (Fed. Cir. 1989). Accordingly, an examiner cannot establish obviousness by locating references which describe various aspects of a patent applicant's invention without also providing evidence of the motivating force which would impel one skilled in the art to do what the patent application has done.

There is no motivating force in the prior art which would have impelled one skilled in the art to add more expensive flax fibers to the Doerer mat when there is no apparent advantage to be gained by doing so.

The next statement appearing in the rejection at page 4 of the final action with which appellant respectfully takes strong issue is the following:

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...although Doerer et al. does not explicitly teach the limitations of melting point and size, it is reasonable to presume that said limitations are inherent to the invention.

It is not proper to presume inherency. In this regard attention is respectfully invited to *In re Brink*, 164 USPQ 247, 249, where the Court stated:

Absent a showing [by the PTO] of some reasonable certainty of inherency, the rejection ... must fail.

Also see *Ex parte Cyba*, 155 USPQ 756, 757 (1967) and *In re Oelrich*, 212 USPQ 323, 326 (CCPA 1981) where the Court said that the inherency of a feature must be "inevitable". It is neither inevitable nor reasonably certain that the polyester mentioned by Doerer as a possibility in a rather large basket disclosure, and not even the preferred material, has either the melting point or size recited in appellant's claims.

As regards the alternate rationale appearing towards the bottom of page 4 of the Final Action, appellant respectfully reverts to *Ex parte Levengood*, *supra*. Merely because something is possible, or within the ability of the person skilled in the art, does not make it obvious. The burden is on the examiner to provide evidence to establish a *prima facie* case of obviousness.

As regards the commentary at the top of page 5 of the Final Action, again the examiner has provided no evidence.

With respect, the rejection is replete with commentary to the fact that this or that would have been obvious, but no evidence is presented as to such alleged obviousness. Moreover, in at least some cases where the rejection says this or that would have been obvious because of some advantage, the prior art does not teach or suggest such an advantage, i.e. it comes either from appellant's specification (not available to the person of ordinary skill in the art at the time the present invention was made), or it comes from some unidentified source which (if it exists) the appellant has a right to face and then rebut.

Lastly, appellant must state that, as is clearly evident from a consideration of Doerer and Barrable, that these two citations are vastly different from one another, and this has been pointed out above. It is not proper to isolate one element from the teachings of a reference, in this case to isolate "flax" from Barrable, and then entirely ignore the remainder of the citation. Instead, the reference must be considered in its entirety, noting for example *In re Mercier*, 185 USPQ 774, 778 (CCPA 1975), where the Court stated:

Whether appellant's invention is obvious under 35 USC 103 depends at the outset upon the propriety of the Board's simultaneous

reliance on what Enk says is known in the art and disregard the rest of Enk's disclosures. We find several difficulties with this analysis. .... These and other questions arise because the Board's approach fails to recognize that **all** of the relevant teachings of the cited references must be considered in determining what they fairly teach to one having ordinary skill in the art. [citations omitted; emphasis in the Court's decision]

The Court then continued further as follows:

The relevant portions of a reference include not only those teachings which would suggest particular aspects of an invention to one having ordinary skill in the art, but also those teachings which would lead such a person away from the claimed invention. [citation omitted]

Also see *In re Wesslau*, 147 USPQ 391, 393 (CCPA 1965), where the Court stated:

It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such references fairly suggests to one of ordinary skill in the art.

Also see *In re Umbricht*, 160 USPQ 15, 19 (CCPA 1968) to the same effect.

Appellant's invention as called for in claim 25 would not have been obvious from a consideration of Doerer in view of Barrable. Appellant respectfully requests reversal of the rejection.

As regards the rejection of claim 29, Vost has not been cited to make up for the deficiencies of Doerer in view of Barrable as pointed out above, and indeed does not do so. Accordingly, claim 29 is patentable for the same reasons as pointed out above.

Appellant next wishes to address the points raised in the Advisory Action.

The examiner says, "Fibrous products made by the dry process disclosed by Doerer would be aerated." This is an unjustified assumption on the part of the examiner. There is no evidence supporting this assumption. As pointed out above, for something to be inherent in the prior art, it must be inevitable or certain. There is no inevitability or certainty in Doerer that the product is aerated, as the mats or panels made by Doerer are produced under a mold pressure of 200-1,000 psi as pointed out at column 5, line 44. The examiner has not met his burden.

The examiner says that appellant's argument (that Doerer and Barrable are not combinable because Doerer discloses using a dry process and Barrable discloses a wet process) is not valid because "the references were not combined to show process of making steps." Here the examiner

admits that he is not considering the references "as a whole" as required, *In re Wesslau, supra; In re Umbricht, supra.*

The issue under Section 103 is always what would have been obvious to the person of ordinary skill in the art, not what the examiner wishes to select from a reference to the exclusion of the remainder of the reference. The person of ordinary skill in the art would consider the entire reference. Seeing that Doerer and Barrable are substantially antithetical to one another by virtue of their contrary methods employed to form their products, such a person of ordinary skill in the art would not be inclined to abstract something from one to incorporate into the other.

In the Advisory Action the examiner again insists that flax fibers are equivalent to other cellulosic fibers, when this is absolutely inaccurate. The product of the present invention must contain flax fibers, and the other fibers indicated as being "equivalent" in Barrable to flax fibers simply are not.

#### CONCLUSION

Appellant respectfully submits that combination would not have been obvious for the reasons given above, that even if obvious appellant's invention would not be reached because the resultant product according to the prior art would

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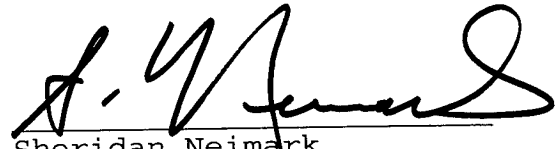
not be aerated, that no valid *prima facie* case of obviousness  
has been established, and therefore the examiner has not met  
his burden.

The rejection should therefore be reversed, and such  
is respectfully prayed.

Respectfully submitted,

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**APPENDIX**

16. A method for production of an insulating material for buildings, comprising

providing recycled clothes and/or fabric remnants as raw material,

shredding the raw material into a homogeneous fibrous shoddy,

providing a homogeneous fibrous mixture consisting essentially of the homogeneous shoddy together with flax fibers and polyester fibers;

aerating the homogeneous fiber mixture to form an aerated fibrous mixture;

forming the aerated mixture into a pre-selected shaped body, and

heating the shaped body until the polyester melt and bonds the remaining fibers together to form the insulation material.

17. A method according to claim 16 wherein the recycled clothes are collected used clothes.

18. A method according to claim 16 wherein the fabric remnants are fabric waste from the furniture industry.

19. A method according to claim 16 wherein the collected clothes and/or fabric remnants are torn to bits and all non-fabric items are removed prior to said shredding.

20. A method according to claim 16 wherein the following quantities are mixed into the shoddy, based on the total mass,

5-50 percent by weight polyster,

5-50 percent by weight flax fibers from fabric remnants, and

up to 2.5 kg of fire-retardant agent 1 per m<sup>3</sup> of shoddy mass.

21. A method according to claims 16 or 20, further comprising adding cardboard and/or paper to the fabric remnants in a quantity of up to 40 percent by weight based on the total mass.

22. A method according to claim 16 wherein said polyester fibers have melting point in the range of 100-300°C and a dtex value in the range of 2-10.

23. The method of claim 21 wherein the percent by weight of polyester is 10-30%, and the percent by weight of flax is 15-40% by weight, and wherein said polyester have a melting point in the range of 100-200°C and a dtex value in the range of 2.5-6.

24. The method of claim 21 wherein the percent by weight of polyester is 15-20%, and the percent by weight of flax is 20-30% by weight, and wherein said polyester have a melting point in the range of 120-170°C and a dtex value in the range of 3-5.

25. An environmentally friendly building insulating material which does not contain substances which are harmful or irritating to people and which does not release harmful substances of dust, consisting essentially of

fabric remnants which have been shredded into a shoddy and then mixed with flax fibers and a fibrous polyester with a low melting point to form an aerated homogeneous mass, and then molded to shape and heat-treated until the polyester fibers melt, bonding the fabric and flax fibers together.

26. An insulating material according to claim 25, wherein the polyester in fibrous form has a melting point in the range 100-300°C, and a dtex value in the range 2-10.

27. An insulating material according to claim 26 wherein the polyester is present in the range of 5-50 percent by weight, based on the material's total weight.

28. An insulating material according to claim 25 or 27 wherein the flax fibers are present in the range of 5-50 percent by weight based on the material's total weight.

29. An insulating material according to claims 25 or 27 wherein the shoddy mass further comprises recycled cardboard and/or wastepaper which is shredded into fibers, said recycled cardboard and/or wastepaper being present in an amount up to 40% by weight.

30. An insulating material according to claim 25 wherein said shape is a mat shape with a length of 120 m, a width within 0.58 - 1.00 m and thickness within 5-15 cm.

31. The insulating material of claim 27 wherein the fibrous polyester has a melting point of 100-200°C and a dtex value of 2.5-6, said polyester being present in an amount of 10-30% by weight, and wherein said flax fibers are present in an amount of 15-40% by weight.

32. The insulating material of claim 30 wherein the fibrous polyester has a melting point of 120-170°C and a dtex value of 3-5, said polyester being present in an amount of 15-20% by weight, wherein said flax fibers are present in an amount of 20-30% by weight, wherein the mat has a heat conductivity of about 0.036 - 0.037 W/mK.

35  
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES



ATTY.'S DOCKET: JOHANSEN=3

In re Application of:

Fridtjov JOHANSEN

Appln. No.: 09/746,560

Date Filed: December 26, 2000

For: ENVIRONMENTALLY FRIENDLY  
COMPATIBLE INSULATING...

) Art Unit: 1771  
)  
) Examiner: J. R. Pierce  
)  
) Washington, D.C.  
)  
) Confirmation No. 1686  
)  
) October 21, 2003  
)

**BRIEF ON BEHALF OF APPELLANT**

Customer Window, Mail Stop Appeal Brief-Patents  
Honorable Commissioner for Patents  
U.S. Patent and Trademark Office  
2011 South Clark Place  
Crystal Plaza Two, Lobby, Room 1B03  
Arlington, Virginia 22202

Sir:

The present Appeal is taken from the Action of the examiner in finally rejecting claims 25-32. A clean copy of these claims, double-spaced, appears in the Appendix to this Brief.

**REAL PARTY IN INTEREST**

The real party in interest is Ultimat AS of Oslo, Norway.

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#### RELATED APPEALS AND INTERFERENCES

Undersigned is aware of no related appeals or interferences.

#### STATUS OF THE CLAIMS

Claims 1-15 are cancelled. Claims 16-24 are withdrawn from consideration. Claims 25-32 are rejected.

#### STATUS OF AMENDMENTS

All amendments have been entered except for the amendment after final action filed July 18, 2003, which has been refused entry on the basis that it raises new issues and is "not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal." As a consequence of the amendment after final action being refused entry, the non-elected claims 16-24 are still pending, although appellant attempted to delete such claims in the amendment after final action.

#### SUMMARY OF INVENTION

The present invention relates to a method for producing an environmentally friendly insulating material, especially useful as an insulating panel for insulating buildings, houses, etc., which is non-allergenic and almost

100% recyclable (page 1, first paragraph<sup>1</sup>; page 2, lines 23-30), which is aerated (page 6, line 27) and thus is lightweight, having a very low heat conductivity (e.g. page 7, line 3), and which critically contains flax fibers (page 3, lines 10-11). More particularly, the mat or panel of the present invention incorporates a mixture of different fibers comprising 5-50% by weight flax fibers, 5-50% by weight polyester fibers, preferably 15-40% by weight flax fibers and 10-30% by weight polyester, most preferably 20-30% by weight flax fibers and 15-20% by weight polyester, with the rest composed of shoddy (page 3, lines 9-14). Of that percentage which constitutes shoddy, 30-40% thereof may be replaced with shredded waste paper and/or cardboard (page 3, lines 15-18).

The method by which the claimed product is made comprises providing the material from which to make shoddy, and shredding such material into a homogeneous fibrous shoddy (page 6, lines 16-20). The shoddy is then blended with the flax fibers and the polyester fibers (page 6, lines 20-24). The resultant mixture is then aerated, e.g. air is blasted through the mass of mixed fibers (page 6, lines 24-27). The aerated mass is then formed to a mat shape and finally heated causing the polyester fibers to at least partially melt and

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<sup>1</sup> Unless otherwise indicated, references herein are to appellant's specification.

provide bonding for the other fibers (page 6, lines 28-33).

The inventive idea of the present invention is not simply to make a mat by mixing different fibers and molding them into a wanted shape and heat treating until the plastic fibers melt and bond the other fibers together to form the mat. Instead, the inventive idea is to make an aerated insulation product for buildings from recycled scrap material such as used clothes, fabric leftovers, etc. In other words, the inventive idea is the conversion of a waste material into a useful product. In addition to solving a waste problem, the claimed product obtains the same quality and performance, but is cheaper to manufacture and significantly more healthy for the personnel handling it and the habitants leaving in the buildings that are isolated by the product than the present corresponding type of products which at least in Europe are of glass wool or rock wool.

By proceeding according to what is disclosed in the present application, one obtains an insulation mat which is mostly air and thus has a very low density. This inherently occurs by aerating the homogenous fiber mixture.

Attention is particularly invited to page 5 of appellant's specification which points out certain advantages to the present invention as follows:



"The use of used fabrics/fabric waste and possibly wastepaper/cardboard which are shredded into shoddy means that this insulating material is particularly environmentally friendly. In the first place, the raw material is recycled materials which at present are usually either incinerated in rubbish plants or deposited in rubbish dumps. The invention thereby helps to reduce the amount of waste and the emission of climate gases. In Norway 3500-4000 tons of fabric waste is discarded every year. It is a known fact that fabric waste will emit methane gas during decomposition. Methane gas is a potent greenhouse gas if it is released into the atmosphere. Incineration of fabric waste also emits climate gases, in this case CO<sub>2</sub>. For this reason, e.g., a law has been introduced in Germany ordering recycling of textiles, and work is underway to introduce a similar law for the entire EU area.

"The material is also advantageous in that it requires a relatively small amount of energy during production. For example, the energy requirement for a 1m<sup>2</sup>, 15 cm thick insulating mat according to the invention is approximately 4 kWh, while for a corresponding Glava mat the energy consumption is approximately 14 kWh or 3.5 times as much. This is clearly a significant saving. In addition, the present invention will save energy since insulating mats made of this material will keep their shape for the foreseeable

future, thus keeping the insulating power intact over a very long period. This is not the case with many of today's insulating materials. Thus the requirement for energy for heating of the buildings/objects employing the insulating material will be reduced compared to that required for present day insulating materials.

"In addition, the insulating material according to the invention is user-friendly, i.e. not hazardous to the building workers and the subsequent occupant(s) since the material does not cause allergy or asthma, it emits almost no noxious gases and produces little dust. The insulating material is therefore particularly suitable for sufferers from asthma and allergy and will help to improve the indoor climate for these people."

#### ISSUES

A first main issue is whether or not the invention as called for in claims 25-28 and 30-32 would have been obvious to the person of ordinary skill in the art at the time the present invention was made as per the provisions of 35 U.S.C. 103, upon consideration of Doerer et al USP 4,418,031 (hereinafter "Doerer") in view of Barrable USP 4,101,335 (hereinafter "Barrable").

A second main issue is whether or not the invention as called for in claim 29 would have been obvious to the person of ordinary skill in the art at the time the present invention was made under the provisions of 35 USC 103 upon consideration of Doerer in view of Barrable, and further in view of Vöst et al USP 5,047,453 (hereinafter simply "Vöst").

There are of course a number of sub-issues involved in each of the main issues, one such sub-issue being whether or not the person of ordinary skill in the art would have attempted to combine the references as proposed in the rejections.

Another sub-issue is whether or not the references, even if obviously combinable, would have led to the claimed subject matter or resulted in the claimed subject matter.

Other sub-issues will become apparent from appellant's argument section appearing below.

#### GROUPING OF CLAIMS

As regards the separate rejection of claim 29, of course this claim must be considered separately from the other claims.

As regards the rejection of claims 25-28 and 30-32, claim 27 can be considered along with claim 25, but each of claims 26, 28, 30, 31 and 32 should be considered separately.

Appellant makes no admission that any of the claims are or are not patentably distinct from one another.

### ARGUMENT

Claims 25-28 and 30-32 have been rejected as obvious under Section 103 from Doerer in view of Barrable. Claim 29 has been similarly rejected as obvious under Section 103 from Doerer in view of Barrable, further in view of Vöst.

To the contrary, appellant respectfully maintains and submits that the subject matter of the invention as called in appellant's claims would not have been obvious to the person of ordinary skill in the art at the time the present invention was made from a consideration of the prior art, and in this regard the examiner has not met his burden.

#### I - The Errors in the Rejection

The rejections are erroneous because the prior art provides no motive or incentive for the proposed combinations.

The rejections are erroneous because the objectives of the various references are substantially different.

The rejections are erroneous because no reasonable combination of the references, even if obvious, would provide everything claimed, and particularly no possible combination

would provide a lightweight product by virtue of its aerated structure.

Other errors in the rejections will be apparent from the arguments appearing below.

## **II - What the Prior Art Documents Disclose**

The applied references in general disclose the manufacture of panels or mats from mixtures of fibers, although in each case the panel or mat produced is of a high density as pointed out below. Doerer's panel may include shoddy, but flax is not mentioned. Barrable lists flax as part of a basket or shotgun disclosure of various fibrous materials. Vöst mentions the use of shredded waste paper.

Insofar as the objectives of the references are concerned, and therefore the resultant structures, the mats or panels according to Doerer, Barrable and Vöst are all of substantial density, i.e. compressed, and not aerated. Such resultant structures of the applied patents are highly compressed, preferably bonded with resin in addition to the thermosetting fibers, in order to obtain self-sustainable mats with densities from several hundred to a few thousands kg/m<sup>3</sup>, see i.e. tables in Examples 4 to 24 in Barrable, and line 62-65, column 2 in Vöst. The pressures employed forming these products are in the order of tens to hundreds of atmospheric

pressures, see line 7, column 3 in Vöst and line 44 of column 5 in Doerer.

Doerer, the main reference relied upon, discloses a fibrous mat formed by what is said to be "a unique dry process", of a mixture of base fibers and carrier fibers (e.g. column 1, lines 17-20). The base fibers are preferably cellulosic, and may come from reclaimable sources (e.g. column 2, lines 10-14). As recognized in the rejection, and even though there is a relatively comprehensive basket or shotgun disclosure of base fibers (column 2, lines 50-53; column 3, lines 67 through column 4, line 3), flax is not mentioned.

The carrier fibers, intended to soften during the process and thus provide a binding effect for the base fibers, may also be selected from a basket or shotgun disclosure of possibilities, including a "material selected from the vinyl family, the polyester family, the polyolefin family, the polyamide family, and any physical or chemical combination of those families" (column 4, lines 6-9). However, polyethylene and polypropylene are preferred. Polyesters are mentioned as a possible supplementary carrier fiber to provide hydrophobic properties, noting column 6, lines 48 et seq, particularly line 62.

In one example, the mixture consists of 85% by weight wood fibers, 10% by weight polypropylene carrier fibers and 5% by weight of phenolic resin (column 7, lines 5-8).

In another example, the mix consists of 85-87% wood fibers, 5% polyethylene resin, 5% phenolic resin, and 3-5% shoddy, the latter consisting of about 35% cotton and about 65% polyester (column 7, lines 23-29).

The fibrous mat of Doerer is made by a dry process which is distinguished from a wet process. From column 2, commencing at line 43:

It is a primary object of this invention to provide a unique dry process of forming a flexible mat consisting essentially of base and carrier fibers, the base fiber being a natural or synthetic fiber, and the carrier fiber being a linking fiber adapted to intertwine or interlock with the base fibers.

Also see column 2, lines 3-5.

The importance of proceeding according to the dry process is emphasized at column 2, lines 32-38 as follows:

While satisfactory products can be made by the wet slurry process, it is a relatively expensive process not only in terms of the amount of energy required but also because of its long manufacturing cycle time and the cost of cleaning the effluent resulting from the process prior to dumping. This invention, however, relates to a dry process and product made therefrom.

Doerer is silent on the formation of an aerated homogeneous mass.

The Doerer process inherently produces a compressed mat or panel, it being again noted that the Doerer products are produced under a mold pressure of 200-1,000 psi (column 5, line 44). Such pressures will inevitably squeeze out any air which might have been left in the mixture of cellulose and polyester fibers.

Barrable discloses shaped articles, made by a wet method, which are "fire-resistant" and are composed primarily of inorganic materials, namely (a) a water-settable inorganic binder which is one or more of a calcium silicate binder, Portland cement, aluminous cement and blast furnace slag cement, (b) fibrous reinforcing material including organic fibers which do not melt below 140°C, and (c) mica and/or vermiculite, inorganic materials.

### **III - Features Recited in Appellant's Claims Which Are Not Made Obvious**

As regards main claim 25, the prior art does not show the formation of an insulating material of "an aerated homogenous mass".

The prior art also does not make obvious the selection of a mixture consisting essentially of "flax fibers" together with a fibrous polyester.



As regards claim 26, the prior art also does not make obvious the use of a polyester having a dtex value in the range of 2-10, in addition to the features of claim 25 present in claim 26 by virtue of its dependence on claim 25.

As regards claim 28, in addition to the features of claim 25, the prior art does not make obvious the use of 5-50% by weight of flax fibers.

As regards claim 29, in addition to the features of claim 25, the prior art does not make obvious the replacement of 40% by weight of the shoddy with shredded recycled cardboard and/or waste paper.

With respect to claim 30, in addition to the features noted above with respect to claim 25, the prior art does not make obvious a mat shaped with a length of 120 m, a width of 0.58-1.00 m and a thickness of 5-15 cm.

With respect to claim 31, again in addition to the features of claim 25, the prior art does not make obvious the use of fibrous polyester having a dtex value of 2.5-6 and the presence of flax fibers in an amount of 15-40% by weight.

With respect to claim 32, in addition to the features of claims 25 and 30, the prior art does not make obvious the use of polyester fibers having a dtex value of 3-5, the presence of 20-30% by weight of flax fibers, and the provision of a heat conductivity of about 0.036-0.037 W/mk.

**IV - The Examiner Has Not Met His Burden: No Prima Facie Case of Obviousness Has Been Established**

The main claim 25 calls for a building insulating material consisting essentially of an aerated mixture of (1) shredded fabric remnants, (2) flax fibers, and (3) fibrous polyester which acts as a bonding agent. (According to claim 29, the shredded fabric remnants part of the material may comprise up to 40% by weight of fibers obtained from shredded cardboard and/or waste paper.)

The examiner agrees that Doerer does not disclose the use of flax, a critical component of appellant's mat. Doerer teaches the use of the cheapest fibers possible, e.g. wood fibers, shoddy, noting the examples. This is only logical.

As noted above, claim 25 also calls for the mixed fibers "to form an **aerated** homogeneous mass." Doerer is silent on this point. No applied reference teaches an aerated mass. A rejection usually cannot be based upon silence in a reference.

The examiner recognizes at least some of the deficiencies of Doerer, and therefore relies on Barrable as a secondary reference to try to make up for one of these deficiencies. Appellant understands that Barrable is only relied upon as a secondary reference, primarily to allegedly show the equivalency between flax and other cellulosic fibers.

Nevertheless, a full description is necessary to show not only its lack of relationship to the present invention, but also its lack of relationship to Doerer, and consequently that the person of ordinary skill in the art, wishing to modify any of the teachings of Doerer, would never be influenced by anything disclosed in Barrable.

As noted above, Barrable relates to a highly dense mat or panel formed largely of inorganic materials (cement and mica and/or vermiculite) in a wet process. How it can be validly said that a reading of Barrable would lead one toward the present invention is entirely unclear to appellant.

The only similarity appellant sees between the present invention and Barrable is that Barrable includes organic fibers which are "preferably cellulosic fibres" (column 2, lines 21 and 22), which can include waste wood pulps of all types, newsprint, as well as synthetic fibres (column 2, lines 27-31), including specifically "polyester fibres". Appellant sees no disclosure of presence of both polyester fibers **and** fibers obtained from fabric remnants and optionally recycled cardboard and/or wastepaper.

Appellant does not see that Barrable discloses the use of polyester fibers as a binding agent. Indeed, Barrable expressly teaches the use of an inorganic binder. To use polyester fibers as a binder in Barrable would be to fly in

the face of Barrable and destroy Barrable for its intended function<sup>2</sup>.

Next, claim 25 requires that the mixture form an **aerated** homogenous mass. Appellant does not see formation of any aerated mass in Barrable. Indeed, the methods of making board as disclosed in Barrable will inevitably lead to dense board. No aeration is disclosed whatsoever.

As pointed out above, Doerer discloses a product which has been necessarily formed by a dry process, whereas Barrable discloses a product which has necessarily been formed by a wet process. When taken with Doerer's criticism of the wet process (column 2, lines 32-38), this distinction alone would cause the person of only ordinary skill in the art to not even consider Barrable in conjunction with Doerer. Such a person of ordinary skill in the art, if he were to look at these two patents together, would consider them utterly incompatible.

As regards the use of flax specifically, what possible reason could the person of ordinary skill in the art have for using flax in the Doerer product, even though it is mentioned as a possibility in Barrable? There is no reason or purpose which is disclosed in the prior art for such a use.

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<sup>2</sup> It is also noted that polyester is only mentioned as part of a large basket or shotgun disclosure with no example being provided of the use of polyester for any purpose whatsoever.

Indeed, flax is a relatively expensive fiber, particularly compared to the inexpensive fibers preferred by Doerer. As there is no advantage disclosed in the prior art for the use of flax in place of less expensive fibers, no reason exists for its use and consequently there is no motive or incentive provided in the prior art to substitute the more expensive fiber for the less expensive fiber.

Respectfully, the combination is only suggested in appellant's own specification, and would not have been obvious to the person of ordinary skill in the art at the time the present invention was made.

Additionally, and even assuming *ad arguendo* that the combination were obvious, it still would not reach the present invention as called for in claim 25, because the resultant mixture of three different types of fibers in any modified Doerer would not "form an aerated homogenous mass" as claimed.

Appellant again respectfully emphasizes that the objectives of the references are largely and significantly different than the objectives of the present invention, and bearing in mind such difference in objectives, it would not have been obvious to the person of ordinary skill in the art to even attempt to manipulate the disclosures of the references so as to abstract portions of one for inclusion into another so as to obtain something which is different from

both Doerer and Barrable. Indeed, Doerer, Barrable and Vöst are all concerned with making pressed and therefore relatively dense shapes, not insulation for buildings.

As noted above, a key inventive idea of the present invention is not simply to make a mat by mixing different and molding them into a wanted shape by heat treatment. Instead, appellant's idea was to make an insulation product for buildings from recycled scrap material such as used clothes, fabric leftovers, etc., i.e. to convert waste material into a useful product. In addition to solving a waste problem, the claimed product has the same quality and performance as prior mats, but is cheaper to manufacture and significantly more than the corresponding type of products which at least in Europe are presently formed using glass wool or rock wool.

By proceeding according to the present application, one inherently obtains by aerating the homogenous fiber mixture an insulation mat which is mostly air and thus has a very low density. This is distinctly contrary to the panels according to Doerer, Barrable, and Vöst, all of which have importantly different densities, i.e. highly compressed structures.

In the mat according to the present invention there is employed hardly any pressure at all, i.e. only enough to shape and maintain the rather extreme aerated structure. It

should therefore be clearly understood that Doerer, Barrable and Vöst refer to a different type of product and are therefore only of little relevance.

The rejection states that Barrable teaches that flax is equivalent to the fibers disclosed by Doerer. However, this is a teaching contrary to the present invention, because flax is not equivalent. In the present invention, three different types of fibers must be present, namely (1) the recycled shoddy, (2) the polyester and (3) the flax. The latter is not equivalent to other fibers.

The present invention requires certain proportions, and this also is not made obvious by the prior art. It is not a matter of routine experimentation, because Doerer and Barrable desire to make denser products, and therefore routine experimentation would not teach how to obtain a product which is different from what is disclosed, taught and desired in both of those prior art patents.

As noted above, both Barrable and Doerer teach the manufacture of relatively dense products, and Barrable and Vöst include binders. In Barrable, a water-settable inorganic binder such as Portland cement is used. In Vöst, a hot melt adhesive and a solid epoxy resin/curing agent system are used. A consideration of these documents together does not lead one

having one ordinary skill in the art to or even anywhere near the present invention.

Moreover, appellant again does not see that the prior art teaches one of the main features of the present invention, namely the aerated nature of the admixture of fibrous materials. As noted above, it is the aeration which results in the aerated product which achieves a product which is largely air and thus provides excellent insulating properties.

To briefly summarize, the prior art teaches away from the present invention, directing the person of ordinary skill in the art to make a dense and highly compressed panel or mat. On this point, the panels or mats of Barrable and Doerer are made by thermosetting under really heavy pressures, such that they will obtain a considerable density (in the order of several hundred kg/m<sup>3</sup>). This density is far too heavy, and the structure of such panels is simply far too packed to be suited as insulation mattresses for buildings. The total weight of the panels according to Doerer and Barrable would with a 10-15 cm thick insulation (that is standard in Norway) weigh many tons above the carry-ability of wooden houses.

As regards the use of flax which is critical to the present invention, the prior art incorrectly teaches the



person of ordinary skill in the art that flax is no different than any other cellulosic fiber. The prior art thus provides no motive or incentive for selecting this more expensive fiber. Indeed, as suggested by Doerer and Vöst, only the cheapest fiber, i.e. the shredded waste paper, should be used in conjunction with the binder material, and this is only logical (although contrary to appellant's use of flax).

The insulating material of claim 25 would not have been *prima facie* obvious from a consideration of the prior art. The examiner has not met his burden.

With respect to claim 26, the prior art does not show the use of polyester having a dtex value in the range of 2-10, and this provides another reason why claim 26 is *prima facie* non-obvious from the prior art.

With regard to claim 28, the prior art does not teach the use of 5-50% by weight of flax fibers, and therefore this is another reason why claim 28 is *prima facie* non-obvious from the prior art.

With respect to claim 29, an even taking Vöst into account, the prior art does not make obvious to use together both shredded recycled cardboard and/or wastepaper in an amount up to 40% by weight together with 60% by weight or less of shoddy, based on the total amount of both shoddy and shredded paper/cardboard.

With respect to claim 30, the prior art further does not make obvious a mat having the dimensions recited.

As regards claim 31, the prior art further does not make obvious the use of a fibrous polyester having a dtex value of 2.5-6 which is present in an amount of 10-30% by weight, together with flax fibers present in an amount of 15-40% by weight.

Lastly, as regards claim 32, the prior art does not make obvious the use of a fibrous polyester having a melting point of 120-170°C and a dtex value of 3-5 present in an amount of 15-20% by weight, wherein the flax fibers are present in an amount of 20-30% by weight, and wherein the mat has a heat conductivity of about 0.036-0.037 W/mK. There is no way that the dense products of the prior art could possibly have such a heat conductivity.

Appellant now wishes to address various points raised in the final Office Action:

On page 4 of the Final Action, the examiner states as follows:

It would have been obvious to one having ordinary skill in the art to use flax fibers as the base fibers in Doerer et al., since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

Appellant respectfully traverses and strenuously objects to such a conclusion. The prior art provides no knowledge of the need for flax in the present invention. Appellant respectfully relies on *Ex parte Levengood*, 28 USPQ 2d 1300, 1301-1302 (BPAI 1993):

The examiner notes that each reference discloses a different aspect of the claimed process. The examiner also notes that all aspects were "well known in the art". The examiner then indicates that because the various aspects of the claimed process were individually known in the art, the modifications of the electrophoretic process of Levengood by exposing Levengood's plant materials to cell-associated materials in order to "graft" or otherwise incorporate the cell associated material into the plants was "**well within the ordinary skill of the art**" at the time the claimed invention was made.

We reverse the rejection because the examiner has used the wrong standard of obviousness. (Italics in original)

Similar to *Levengood*, the rejection in the present case seems to be largely based on the assumption that it is proper to combine diverse elements from different references merely because these elements were known, and that it is possible in retrospect to combine them, but that is not the correct standard.

In order to establish a *prima facie* case of obviousness, it is necessary for the examiner to present **evidence** [footnote

including cited cases, omitted], preferably in the form of some teaching, suggestion, incentive or inference in the applied prior art, or in the form of generally available knowledge, that one having ordinary skill in the art **would have been led** to combine the relevant teachings of the applied references in the proposed manner to arrive at the claimed invention. See, for example, *Carella v. Starlight Archery*, 804 F.2d 135, 231 USPQ 644 (Fed. Cir. 1986); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 227 USPQ 657 (Fed. Cir. 1985). (Italics in original)

In the present case, as in *Levengood*, the prior art would not have led the person of ordinary skill in the art to appellant's invention because only a disadvantage, greater cost, would be expected to result from substituting flax for cheaper fibers.

In this case, . . . , the only suggestion for the examiner's combination of the isolated teachings of the applied references improperly stems from appellant's disclosure and not from the applied prior art. In *re Ehrreich*, 590 F.2d 902, 200 USPQ 504 (CCPA 1979). **At best the examiner's comments regarding obviousness amount to an assertion that one of the ordinary skill in the relevant art would have been able to arrive at appellant's invention because he had the necessary skills to carry out the requisite process steps. This is an inappropriate standard for obviousness. See *Orthokinetics Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1 USPQ 2d 1081 (Fed. Cir. 1986). That which is within the capabilities of one skilled in the art is not synonymous with obviousness. Ex parte Gerlach, 212 USPQ 471 (Bd. App. 1980). See also footnote 16 of *Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d**

1082, 1092, 227 USPQ 337, 343 (Fed. Cir.  
1985). (Emphasis added)

Simply because using flax is within the capability of "the general skill of a worker in the art" does not make it obvious to do so, particularly when there is no apparent advantage to do so provided in the prior art.

Our reviewing courts have often advised the Patent and Trademark Office that it can satisfy the burden of establishing a *prima facie* case of obviousness only by showing some objective teaching in either the prior art, or knowledge generally available to one of the ordinary skill in the art, that "would lead" that individual "to combine the relevant teachings of the references." *In re Fine*, 837 F.2d 1071, 5 USPQ 2d 1596 (Fed. Cir. 1988). *In re Newell*, 891 F.2d 899, 13 USPQ 2d 1248 (Fed. Cir. 1989). Accordingly, an examiner cannot establish obviousness by locating references which describe various aspects of a patent applicant's invention without also providing evidence of the motivating force which would impel one skilled in the art to do what the patent application has done.

There is no motivating force in the prior art which would have impelled one skilled in the art to add more expensive flax fibers to the Doerer mat when there is no apparent advantage to be gained by doing so.

The next statement appearing in the rejection at page 4 of the final action with which appellant respectfully takes strong issue is the following:

...although Doerer et al. does not explicitly teach the limitations of melting point and size, it is reasonable to presume that said limitations are inherent to the invention.

It is not proper to presume inherency. In this regard attention is respectfully invited to *In re Brink*, 164 USPQ 247, 249, where the Court stated:

Absent a showing [by the PTO] of some reasonable certainty of inherency, the rejection ... must fail.

Also see *Ex parte Cyba*, 155 USPQ 756, 757 (1967) and *In re Oelrich*, 212 USPQ 323, 326 (CCPA 1981) where the Court said that the inherency of a feature must be "inevitable". It is neither inevitable nor reasonably certain that the polyester mentioned by Doerer as a possibility in a rather large basket disclosure, and not even the preferred material, has either the melting point or size recited in appellant's claims.

As regards the alternate rationale appearing towards the bottom of page 4 of the Final Action, appellant respectfully reverts to *Ex parte Levengood*, *supra*. Merely because something is possible, or within the ability of the person skilled in the art, does not make it obvious. The burden is on the examiner to provide evidence to establish a *prima facie* case of obviousness.

As regards the commentary at the top of page 5 of the Final Action, again the examiner has provided no evidence.

With respect, the rejection is replete with commentary to the fact that this or that would have been obvious, but no evidence is presented as to such alleged obviousness. Moreover, in at least some cases where the rejection says this or that would have been obvious because of some advantage, the prior art does not teach or suggest such an advantage, i.e. it comes either from appellant's specification (not available to the person of ordinary skill in the art at the time the present invention was made), or it comes from some unidentified source which (if it exists) the appellant has a right to face and then rebut.

Lastly, appellant must state that, as is clearly evident from a consideration of Doerer and Barrable, that these two citations are vastly different from one another, and this has been pointed out above. It is not proper to isolate one element from the teachings of a reference, in this case to isolate "flax" from Barrable, and then entirely ignore the remainder of the citation. Instead, the reference must be considered in its entirety, noting for example *In re Mercier*, 185 USPQ 774, 778 (CCPA 1975), where the Court stated:

Whether appellant's invention is obvious under 35 USC 103 depends at the outset upon the propriety of the Board's simultaneous

reliance on what Enk says is known in the art and disregard the rest of Enk's disclosures. We find several difficulties with this analysis. .... These and other questions arise because the Board's approach fails to recognize that **all** of the relevant teachings of the cited references must be considered in determining what they fairly teach to one having ordinary skill in the art. [citations omitted; emphasis in the Court's decision]

The Court then continued further as follows:

The relevant portions of a reference include not only those teachings which would suggest particular aspects of an invention to one having ordinary skill in the art, but also those teachings which would lead such a person away from the claimed invention. [citation omitted]

Also see *In re Wesslau*, 147 USPQ 391, 393 (CCPA 1965), where the Court stated:

It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such references fairly suggests to one of ordinary skill in the art.

Also see *In re Umbricht*, 160 USPQ 15, 19 (CCPA 1968) to the same effect.

Appellant's invention as called for in claim 25 would not have been obvious from a consideration of Doerer in view of Barrable. Appellant respectfully requests reversal of the rejection.



As regards the rejection of claim 29, Vost has not been cited to make up for the deficiencies of Doerer in view of Barrable as pointed out above, and indeed does not do so. Accordingly, claim 29 is patentable for the same reasons as pointed out above.

Appellant next wishes to address the points raised in the Advisory Action.

The examiner says, "Fibrous products made by the dry process disclosed by Doerer would be aerated." This is an unjustified assumption on the part of the examiner. There is no evidence supporting this assumption. As pointed out above, for something to be inherent in the prior art, it must be inevitable or certain. There is no inevitability or certainty in Doerer that the product is aerated, as the mats or panels made by Doerer are produced under a mold pressure of 200-1,000 psi as pointed out at column 5, line 44. The examiner has not met his burden.

The examiner says that appellant's argument (that Doerer and Barrable are not combinable because Doerer discloses using a dry process and Barrable discloses a wet process) is not valid because "the references were not combined to show process of making steps." Here the examiner

admits that he is not considering the references "as a whole" as required, *In re Wesslau, supra*; *In re Umbricht, supra*.

The issue under Section 103 is always what would have been obvious to the person of ordinary skill in the art, not what the examiner wishes to select from a reference to the exclusion of the remainder of the reference. The person of ordinary skill in the art would consider the entire reference. Seeing that Doerer and Barrable are substantially antithetical to one another by virtue of their contrary methods employed to form their products, such a person of ordinary skill in the art would not be inclined to abstract something from one to incorporate into the other.

In the Advisory Action the examiner again insists that flax fibers are equivalent to other cellulosic fibers, when this is absolutely inaccurate. The product of the present invention must contain flax fibers, and the other fibers indicated as being "equivalent" in Barrable to flax fibers simply are not.

#### CONCLUSION

Appellant respectfully submits that combination would not have been obvious for the reasons given above, that even if obvious appellant's invention would not be reached because the resultant product according to the prior art would

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dated October 21, 2003

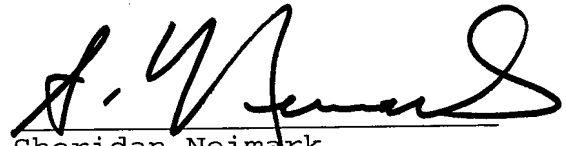
not be aerated, that no valid *prima facie* case of obviousness  
has been established, and therefore the examiner has not met  
his burden.

The rejection should therefore be reversed, and such  
is respectfully prayed.

Respectfully submitted,

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**APPENDIX**

16. A method for production of an insulating material for buildings, comprising

    providing recycled clothes and/or fabric remnants as raw material,

    shredding the raw material into a homogeneous fibrous shoddy,

    providing a homogeneous fibrous mixture consisting essentially of the homogeneous shoddy together with flax fibers and polyester fibers;

    aerating the homogeneous fiber mixture to form an aerated fibrous mixture;

    forming the aerated mixture into a pre-selected shaped body, and

    heating the shaped body until the polyester melt and bonds the remaining fibers together to form the insulation material.

17. A method according to claim 16 wherein the recycled clothes are collected used clothes.

18. A method according to claim 16 wherein the fabric remnants are fabric waste from the furniture industry.

19. A method according to claim 16 wherein the collected clothes and/or fabric remnants are torn to bits and all non-fabric items are removed prior to said shredding.

20. A method according to claim 16 wherein the following quantities are mixed into the shoddy, based on the total mass,

5-50 percent by weight polyester,

5-50 percent by weight flax fibers from fabric remnants, and

up to 2.5 kg of fire-retardant agent 1 per m<sup>3</sup> of shoddy mass.

21. A method according to claims 16 or 20, further comprising adding cardboard and/or paper to the fabric remnants in a quantity of up to 40 percent by weight based on the total mass.

22. A method according to claim 16 wherein said polyester fibers have melting point in the range of 100-300°C and a dtex value in the range of 2-10.

23. The method of claim 21 wherein the percent by weight of polyester is 10-30%, and the percent by weight of flax is 15-40% by weight, and wherein said polyester have a melting point in the range of 100-200°C and a dtex value in the range of 2.5-6.

24. The method of claim 21 wherein the percent by weight of polyester is 15-20%, and the percent by weight of flax is 20-30% by weight, and wherein said polyester have a melting point in the range of 120-170°C and a dtex value in the range of 3-5.

25. An environmentally friendly building insulating material which does not contain substances which are harmful or irritating to people and which does not release harmful substances of dust, consisting essentially of

fabric remnants which have been shredded into a shoddy and then mixed with flax fibers and a fibrous polyester with a low melting point to form an aerated homogeneous mass, and then molded to shape and heat-treated until the polyester fibers melt, bonding the fabric and flax fibers together.

26. An insulating material according to claim 25, wherein the polyester in fibrous form has a melting point in the range 100-300°C, and a dtex value in the range 2-10.

27. An insulating material according to claim 26 wherein the polyester is present in the range of 5-50 percent by weight, based on the material's total weight.

28. An insulating material according to claim 25 or 27 wherein the flax fibers are present in the range of 5-50 percent by weight based on the material's total weight.

29. An insulating material according to claims 25 or 27 wherein the shoddy mass further comprises recycled cardboard and/or wastepaper which is shredded into fibers, said recycled cardboard and/or wastepaper being present in an amount up to 40% by weight.

30. An insulating material according to claim 25 wherein said shape is a mat shape with a length of 120 m, a width within 0.58 - 1.00 m and thickness within 5-15 cm.

31. The insulating material of claim 27 wherein the fibrous polyester has a melting point of 100-200°C and a dtex value of 2.5-6, said polyester being present in an amount of 10-30% by weight, and wherein said flax fibers are present in an amount of 15-40% by weight.

32. The insulating material of claim 30 wherein the fibrous polyester has a melting point of 120-170°C and a dtex value of 3-5, said polyester being present in an amount of 15-20% by weight, wherein said flax fibers are present in an amount of 20-30% by weight, wherein the mat has a heat conductivity of about 0.036 - 0.037 W/mK.